II. AMENDMENTS TO THE CLAIMS

Please amend 1-13 and 15-19, and add claims 20-24 as directed below. Claim 14 has not been changed. (The claims below have been amended in the manner required by 37 C.F.R. §1.173(b)(2), showing all changes (i.e., with additions underlined and omitted portions bracketed as required by 37 C.F.R. 1.173(d)).

1. (Amended) A coil interface for coupling a head coil element [plurality of coil elements] in a phased array magnetic resonance imaging coil to a host magnetic resonance imaging system, comprising:

a plurality of signal input ports for coupling to the head coil element [plurality of coil elements];

a plurality of output ports for coupling to predetermined receivers of the host magnetic resonance imagining system; and

an interface circuit that in a first imaging mode selectively couples [at least two] said signal input ports of the head coil element to an equal number of said output ports, and, in a second imaging mode, selectively couples [at least two] said signal input ports of the head coil element to a lesser number of said output ports.

2. (Amended) The [A] coil interface as claimed in claim 1, wherein the interface circuit is remotely configured to couple said plurality of signal input ports to a predetermined sequence of said output ports.

3. (Amended) The [A] coil interface as claimed in claim 1, wherein said plurality of signal input ports comprise[s an] a first signal input port and a second signal input port for receiving an in-phase MR signal and a quadrature MR signal, respectfully, from a quadrature birdcage-type head coil element.

4. (Amended) The [A] coil interface as claimed in claim 3, wherein said interface circuit is remotely configured to couple said first signal input port for said in-phase MR signal input and said

second signal input port for said quadrature MR signal input to a single predetermined one of said output ports.

5. (Amended) The [A] coil interface as claimed in claim 3, wherein said interface circuit is remotely configured to couple said first signal input port for said in-phase MR signal input to a first predetermined one of said output ports and to couple said second signal input port for said quadrature MR signal input to a second predetermined one of said output ports.

6. (Amended) The [A] coil interface as claimed in claim 1, wherein said plurality of signal input ports exceeds said plurality of output ports in number.

7. (Amended) The [A] coil interface as claimed in claim 1, wherein a conductive path through said interface circuit between an input port from [the] said plurality of signal input ports and an output port from [the] said plurality of output ports has an electrical length that is equal to an integer multiple of half wavelengths.

8. (Amended) The [A] coil interface as claimed in claim 1, wherein said interface circuit comprises a remotely operable PIN diode switch and a 90° phase shift.

9. (Amended) The [A] coil interface as claimed in claim 8, wherein PIN diode switch is operable from an operator's console for the magnetic resonance imaging system.

10. (Amended) The [A] coil interface as claimed in claim 1, wherein said plurality of signal input ports comprises a first signal input port for [comprises] an in-phase magnetic resonance signal from [a] [quadrature] said head coil element [within said plurality of coil elements] and a second signal input port for [comprises] a quadrature magnetic resonance signal from [the quadrature] said head coil element.

11. (Amended) The [A] coil interface as claimed in claim 10, wherein said first signal input port is coupled to a first of said output ports and said second signal input port is coupled to a second of said output ports, in accordance with the first mode of operation.

12. (Amended) The [A] coil interface as claimed in claim 10, wherein only one of said in-phase magnetic resonance [first] signal [input] and said quadrature magnetic resonance [second] signal [input] is applied to a phase shifter, producing a phase shifted signal input and a remaining signal input.

13. (Amended) The [A] coil interface as claimed in claim 12, wherein said phase shifted signal input and said remaining signal input are combined and then applied to a single one of said output ports, in accordance with the second mode of operation.

15. (Amended) The [A] method as claimed in claim 14, further comprising the step of disabling unused coil elements in the quadrature phased array MR coil in accordance with the selection of the imaging mode.

16. (Amended) The [A] method as claimed in claim 14, wherein the step of configuring the interface circuit comprises adjusting a state of a radio frequency switch.

17. (Amended) The [A] method as claimed in claim 16, wherein the state of the radio frequency switch causes [an] the in-phase MR signal output from [a] the quadrature element of the quadrature phased array MR coil to be routed to a first receiver input, and causes [a] the quadrature MR signal output from the quadrature element to be routed to a second receiver input.

18. (Amended) The [A] method as claimed in claim 16, wherein the state of the radio frequency switch causes [an] the in-phase MR signal output from [a] the quadrature element of the quadrature phased array MR coil to be combined with [a] the quadrature MR signal output from the quadrature element forming a combined MR signal, the combined MR signal being coupled by the interface circuit to a single receiver input.

19. The [A] method as claimed in claim 18, wherein said single receiver input comprises a FAST receiver input.

20. (New) A head coil for coupling to a magnetic resonance system, said magnetic resonance (MR) system being equipped with a predetermined number of receivers, the head coil comprising:

(a) a head coil element; and

(b) a coil interface for coupling said head coil element to the MR system, said coil interface including:

(I) a plurality of signal input ports for coupling to the head coil element;

(II) a plurality of output ports for coupling to the predetermined number of receivers of the MR system; and

(III) an interface circuit that (A) in a first imaging mode, selectively couples said signal input ports of the head coil element to an equal number of said output ports and (B) in a second imaging mode, selectively couples said signal input ports of the head coil element to a lesser number of said output ports.

21. (New) A neurovascular coil system for coupling to a magnetic resonance (MR) system, said MR system being equipped with a predetermined number of receivers, the neurovascular coil system comprising:

(a) a head coil;

(b) another coil; and

(c) a coil interface for coupling said head coil and said another coil to the MR system, said coil interface including:

(I) a plurality of input ports with said head coil connected to at least one of said input ports and said another coil connected to at least one of said input ports;

(II) a plurality of output ports for coupling to the predetermined number of receivers of the MR system; and

(III) an interface circuit for enabling the neurovascular coil system to be selectively operated in a plurality of operating modes such that one of said coils (A) in one of said operating modes has said input port(s) corresponding thereto coupled to an equal number of

said output ports and (B) in another of said operating modes has said input port(s) corresponding thereto coupled to a lesser number of output ports.

22. (New) The neurovascular coil system of claim 21 wherein said one of said coils is said head coil.

23. (New) A neurovascular coil system for coupling to a magnetic resonance (MR) system, said MR system being equipped with a predetermined number of receivers, the neurovascular coil system comprising:

(a) a head coil;

(b) another coil; and

(c) a coil interface for coupling said head coil and said another coil to the MR system, said coil interface including:

(I) a plurality of input ports with said head coil connected to at least one of said input ports and said another coil connected to at least one of said input ports;

(II) a plurality of output ports for coupling to the predetermined number of receivers of the MR system; and

(III) an interface circuit for enabling the neurovascular coil system to be selectively operated in a plurality of operating modes with (A) a HIGH RESOLUTION BRAIN MODE thereof having said input ports corresponding to said head coil coupled to an equal number of said output ports and (B) a HIGH SPEED BRAIN MODE thereof having said input ports corresponding to said head coil coupled to a lesser number of output ports.

24. (New) A magnetic resonance (MR) system comprising:

(a) a predetermined number of receivers; and

(b) a neurovascular coil system operably connectable to the MR system, said neurovascular coil system including:

(I) a head coil;

(II) another coil; and

(III) a coil interface for coupling said head coil and said another coil to the MR system, said coil interface including:

(A) a plurality of input ports with said head coil connected to at least one of said input ports and said another coil connected to at least one of said input ports;

(B) a plurality of output ports for coupling to the predetermined number of receivers of the MR system; and

(C) an interface circuit for enabling said neurovascular coil system to be selectively operated in a plurality of operating modes with one of said coils (A) in one of said operating modes having said input port(s) corresponding thereto coupled to an equal number of said output ports and (B) in another of said operating modes having said input port(s) corresponding thereto coupled to a lesser number of output ports.